standards have been established. The EPA assigns designations, based on an area's meeting, or "attaining" these standards. The Wichita-Sedgwick County area is designated "In Attainment" for criteria pollutants and air toxins.

A conformity determination based on air emission analysis is required for each proposed Federal action within a non-attainment area. Since this geographical region is in attainment and meets the National Air Quality Standards for the criteria pollutants designated in the CAA, a conformity determination is not required.

4.8 Hazardous, Toxic, and Radiological Waste

HDR Engineering, Inc., was contracted to conduct a Hazardous, Toxic and Radioactive Waste (HTRW) survey for the Cowskin Creek project. They concluded that the potential for discovery and significant problems related to HTRW during project construction or operation is low.

No developments are present within 200-300 feet along either side of the creek, which the exception of three bridges. The land is densely covered with grass, shrubs, and trees. Numerous residential structures are present beyond, on either side of the creek. Neither current nor historic uses appear to present significant environmental concerns. No sites of environmental concern were identified on any of the Federal or state environmental databases searched. A review of historical aerial photographs reveal that the area has remained largely unchanged since 1938, with the exception of residential development, new bridge construction, and roadway improvements. Three sites located within the HTRW search boundaries were identified in the database search: Johnson's General Store, at 10318 Maple Street (Underground Storage Tank (UST)); Universal Quick Mart, 20611 W. Harry (UST); and Millers Cleaners, 323 S. Maize Road (Resource Conservation and Recovery Act (RCRA)). Based on the information provided regarding the nature of listing and regulatory status, as well as their proximity to Cowskin Creek, these three sites do not appear likely to result in a significant environmental impact to any portion of the project area affected by future construction activities. The Wichita-Sedgwick County Health Department provided information on historical activities for the area through record reviews and specialized knowledge from divisions within the department. Records indicate that limited dumping took place on private land during the 1970's and 1980's on the west side of Cowskin Creek, north of Kellogg. During the 1990's, considerable quantities of concrete were dumped on the east side of Cowskin Creek. Both areas appear to have been cleaned up, as HDR Engineering observed no evidence during the site reconnaissance. Given the historic time frames and the nature of the materials, it is unlikely that these past incidents have resulted in a significant environmental impact to the area. A site reconnaissance was conducted on October 8, 9, and 10, 2001. No evidence of dumping was observed, with the exception of some lawn debris such as tree limbs and grass clippings. A 55-gallon drum was washed up on the east bank. None of these materials appeared to represent a threat of significant environmental impact to the site.

SECTION 5.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A summary of environmental impacts is presented in Table 5.0, Impact Assessment Matrix.

5.1 Social and Economic Impacts

5.1.1 Future Without-Project Conditions

5.1.1.1 Population

Under the without-project conditions, population trends of the past decade will likely continue with higher than average rates of population growth and lower than average ages within the City of Wichita. This trend continues the in-migration of the working age population as the opportunities in the City of Wichita and surrounding metropolitan areas draw from the available labor force in the region. Job opportunities in the City of Wichita and the demand for residential lands will be linked to future population dynamics in the area. In the absence of flood control improvements, slower urban development in the western area of the City of Wichita will experience reduced population growth and urban densities. The flooding along Cowskin Creek will continue to disrupt the lives of those conducting business, going to school and residing in flood prone areas. The health and safety of these individuals will continue to be at risk.

Table 5.0
Impact Assessment Matrix

Name of Parameter	Magnitude of Probable Impact						
	Increasing Beneficial Impact			No Appreciable Effect	Increasing Adverse Impact		
	Significant	Substantial	Minor		Minor	Substantial	Significant
A. Social Effects							
1. Noise Levels				x			
2. Aesthetic Values					X		
3. Recreational Opportunities				x			
4. Transportation			x				
5. Public Health and Safety		X					
6. Community Cohesion (Sense of Unity)			x				
7. Community Growth and Development			x				
8. Business and Home Relocations				x			
9. Existing/Potential Land Use			x				
10. Controversy				x			
B. Economic Effects							
1. Property Values			x				
2. Tax Revenues			x				
3. Public Facilities and Services			x				
4. Regional Growth				x			
5. Employment				x			
6. Business Activity			x				
7. Farmland/Food Supply					X		
8. Flooding Effects	X						
C. Natural Resource Effects							
1. Air Quality				x			
2. Terrestrial Habitat					X		
3. Wetlands				x			
4. Aquatic Habitat			x				
5. Habitat Diversity and Interspersion			x				
6. Biological Productivity			x				
7. Surface Water Quality				x			
8. Water Supply				x			
9. Groundwater				x			
10. Soils				x			
11. Threatened and Endangered Species					X		
D. Cultural Resources							
1. Historic Architectural Values				x			
2. Pre-Historic & Historic Archeological Values				x			

5.1.1.2 Employment

The unemployment rate will remain similar to the state level. Manufacturing and education, health, and social services will remain an important part of the industrial segment of the economy, and management and retail trade are expected to continue their importance as part of the Sedgwick County economy. Floodwaters will continue to pose a threat to business, as traffic access is restricted to the area in addition to operational interruptions that occur from flooding. Flooding will continue to disrupt residential and business activities in the areas adjacent to Wichita. Overall employment in the metropolitan area will not likely be increased in the absence of a flood control project on Cowskin Creek; however, growth in the flood prone areas will be increased.

5.1.1.3 Income

Income of persons living in the area is expected to remain similar to the state and national averages. Flooding will continue to reduce the income of those living and working in areas subject to inundation by Cowskin Creek as flood insurance or flood related costs reduce disposable income. Aggregate income for the metropolitan area of Wichita will not be significantly affected by the flood problems of Cowskin Creek.

5.1.1.4 Social Ecology

Land use for the Wichita area will continue to be a mixture of low, moderate and high-income residential properties, commercial development, and industrial lands. Demand for new residential developments will increase the transition of available unimproved lands into residential areas although at a pace that will be slower than in the surrounding flood-free metropolitan areas. The Wichita area will continue to be a center for retail businesses, service and educational facilities.

5.1.2 Future With-Project Conditions

5.1.2.1 Population

The flood control project will have a direct impact on the number of people living in the study area in general and along Cowskin Creek in particular. Population trends for the metropolitan area of the past decade will continue at high rates of growth, as people will move to the Wichita area with its employment opportunities supported by the large manufacturing sector. Construction from the flood control project may temporarily increase noise and traffic along Cowskin Creek and will affect persons living in and those commuting through the project area. A small amount of additional lands may be required for the enlarged channel project. Acquisition of these lands, including up to 5 houses, may displace some residents although greater flood protection will reduce the threat to health and safety of the population living in and commuting through the areas currently subject to flooding. Additional residential construction in flood-protected areas will stimulate population growth in the area in future decades.

5.1.2.2 Employment

The project construction may slightly increase job opportunities in the area until construction is complete. Long-term area employment will increase slightly in response to additional residential construction, commercial employment, and the increased retail trade in the Cowskin Creek area. The overall aggregate employment rate of the Wichita metropolitan area will not be significantly affected.

5.1.2.3 Income

Short-term construction related employment would increase area incomes, as expenditures for materials and labor will be made during the flood control project construction. Long-term increases in income within the Cowskin Creek area will be realized as construction of residential and commercial property takes place in response to reduced flood hazards within the area.

5.1.2.4 Social Ecology

Although land use for the Wichita metropolitan area will continue to be a mixture of residential properties, commercial development, and industrial lands, increased quality urban growth will occur in the absence of the flood hazard. The Wichita community will develop a more diverse population profile with increases in area employment from residential and commercial growth. Demand for new residential developments in the flood-free areas will increase the transition of developable lands into residential areas at a pace that will be slightly ahead of surrounding areas. The Wichita area will continue to be a center for retail businesses, service and educational facilities. Additional business growth will follow increased population growth. The safety of Cowskin Creek area residents will be improved from flood reduction measures.

5.2 Natural Resource Impacts

5.2.1 Terrestrial

Essentially all of the original flood plain vegetation has been eliminated from the project area and replaced by urban and agricultural land. The total project area is approximately 47.5 acres. All vegetation along the east bank of Cowskin Creek within the construction zone would be removed. This includes 7 acres of riparian forest and 5.9 acres of mixed grass/open scrub savannah habitat along the stream and at the lower end of the project. It includes a 1.5-acre wetland area near the south end of the project that is vegetated predominately with smartweed and water tolerant grasses. Only a few riparian species remain along Cowskin Creek and these are limited to a few scattered trees in the narrow corridor along the bank of Cowskin Creek and a five-acre block of timber at the lower end of the project just upstream of Kellogg Avenue. The mature tree species along the creek channel are listed in section 4.4.1. About 15 acres of cropland provide limited seasonal cover and is of lesser quality as wildlife habitat but it furnishes an important food source during certain periods of the year.

Wildlife habitat remaining in the project area is limited to streamside habitat in a narrow corridor along the east bank of Cowskin Creek. Since the surrounding area is developed or farmed all the way to the channel, very little habitat exists outside this corridor. Wildlife species utilizing this habitat would be displaced. Mitigation to offset project losses is furnished in Section 6.0.

5.2.2 Prime Farmland

Two soil types are transected by the project and approximately 15 acres would be affected. These are Elandco silt loam and Elandco silt loam, occasionally flooded. Both are listed as prime farmland and are farmed along most of the east bank of Cowskin Creek (Photo 5.2.2). Excavation of the channel would have a negative impact on these soils. Farmland along Cowskin Creek would continue to flood, but on a less severe basis. Under with-project conditions floodwater would recede from the farmland at a faster rate because of the improved drainage and 'storage' provided by the enlarged channel. Cropping patterns would not change significantly with the project.

5.2.3 Aquatic and Wetlands

Activities associated with construction of the Cowskin Creek project would have a minor sedimentation impact on Cowskin Creek. Water quality should return to pre-project condition after construction. A low water crossing located at Station 478+95 may be altered by the project. Aquatic habitat existing above the crossing may be impacted if the crossing is altered. The loss of woody vegetation along the east bank will reduce shade and root structure habitat. Aquatic losses will be lessened by the design of the channel. The existing channel will be retained to serve as a low flow channel and will carry most flows. High flows will spread into the bench channel when they reach a design magnitude and function to reduce the severity of overbank flooding.

5.2.4 Wildlife

Impacts would occur to those species of wildlife residing in the project area that are dependent upon the very narrow corridor of habitat along the east bank of Cowskin Creek. Species observed in the project area include whitetail deer, small game, furbearers, rodents, and native sparrows. The eastern spotted skunk is of particular concern to the

Photo 5.2.2 Farmland along east bank of Cowskin Creek.

Kansas Department of Wildlife and Parks who has designated all suitable habitats within the Cowskin Creek drainage basin as critical habitat. Impacts would be reduced through mitigation efforts (Section 6.0).

5.3 Wetlands and Water Quality Permits

The project is located in the Cowskin Creek flood plain and involves excavation along the east bank of Cowskin Creek to increase the streams carrying capacity during heavy rain events. The bottom elevation of this new construction would not disturb the existing channel and would remain above the Ordinary High Water Mark of Cowskin Creek. The U.S. Army Corps of Engineers, Tulsa District has determined that a permit pursuant to Section 404 of the Clean Water Act is not required (Appendix B).

5.4 Threatened and Endangered Species

The U.S. Fish and Wildlife Service reports that there is no record of occurrence of any Federally listed threatened or endangered species based on a review of the proposed project area.

State-listed threatened and endangered species known or likely to occur in the project area includes the threatened eastern spotted skunk. The Kansas Department of Wildlife and Parks has designated all suitable habitats in the Cowskin Creek drainage basin in Sedgwick County as critical habitat for the eastern spotted skunk.

Spotted skunks may occur in suitable habitat anywhere in the state. They seem to prefer forest edges and upland prairie grasslands, especially where rock outcrops and shrub clumps are present. In western counties, it relies heavily on riparian corridors where woody shrubs and woodland edges are present. Woody fencerows, odd areas, and abandoned farm buildings are also important habitat for spotted skunks.

Spotted skunk habitat for the Cowskin project consists of a narrow bank of native vegetation along to the banks of the creek plus several acres in a larger block at the south end of the project. Mitigation for habitat loss is discussed in Section 6.0.

5.5 Cultural Resources

As outlined in section 4.6, Section 106 coordination (National Historic Preservation Act of 1966, as amended) is complete. The proposed project will have no effect on historic properties.

5.6 Water Quality

There would be a temporary increase in siltation during construction. Water quality should return to pre-project conditions following construction. The proposed project should not have a permanent impact on the quality of surface or groundwater.

5.7 Air Quality

Construction activity would have a minor temporary impact on air quality caused by heavy equipment operation and from fugitive dust (particulate) emissions in and around the project site. Construction contractors will comply with all appropriate Federal air quality regulations to limit the dispersal of particulate matter. A temporary increase in exhaust emissions would be expected during construction.

5.8 Noise

There would be an increase in noise from heavy equipment during construction, but this would be temporary and last only during the construction period.

5.9 Cumulative Impacts

No cumulative impacts are anticipated to occur as a result of the proposed project.

SECTION 6.0 MITIGATION PLAN

Project related impacts were identified during project formulation and data gathering for the Environmental Assessment, and coordination planning with the US Fish and Wildlife Service (Appendix C). Mitigation was developed to avoid or offset losses.

The preferred alternative involves working only the east bank of Cowskin Creek and would require the removal of habitat only on that side of the stream. The natural stream channel would not be filled and existing riparian habitat on the west bank would be retained. Flows would continue to follow the existing channel except during periods of flooding when floodwater would enter the excavated channel. Mitigation for the loss of the streambank vegetation, associated wetlands, and riparian/bottomland hardwood habitat consists of planting a native grass/forb mix, creating an excavated wetland, and planting native tree species. The mitigation plan design is illustrated in Figure 6.0.

A native grass/forb mix will be planted at a seeding rate of 18 pounds per acre on 31.2 acres of open area disturbed during construction (Approximately 565 pounds of seed mix). The mix consists of sideoats grama (150 pounds), blue grama (150 pounds), buffalo grass (55 pounds), sand lovegrass (50 pounds), western wheatgrass (50 pounds), Illinois bundleflower (50 pounds), and partridge pea (60 pounds). Lime and fertilizer will be applied per soil tests for that mix on a well-prepared seedbed. The mixture will be planted with a grass or pasture drill equipped with an agitator in the seedbox to provide equal distribution of seed. Seeding depth will be shallow per specifications and the area will be mulched.

An excavated wetland will be created at the site of an existing 1.5-acre wetland that will be removed during construction/excavation of the overflow bench. The top one and one-half feet of topsoil from the existing wetland will be removed and stockpiled for later re-application after construction of the excavated wetland. The reconstructed

wetland will be 2.3 acres and will replace the existing wetland at a 1.5:1 ratio. The final grade through most of the reconstructed wetland after the re-application of the stockpiled topsoil will be at least 1.5 feet below the point at which the general grade resumes at the downstream end. The overburden will be re-applied over the wetland at a nominal depth of one foot. After re-application of the topsoil is complete the wetland will be reseeded with a wetland seed mix at a rate of 20 pounds per acre.

Fourteen acres of trees will be planted to replace 7 acres of riparian timber removed by the project for a replacement ratio of 2:1. Tree species will consist of bare root seedlings of black walnut, bur oak, cottonwood, hackberry, and pecan. Species will be mixed as they are planted. The grass mix discussed above will be applied to the tree planting area prior to planting the seedlings. Trees will be planted on the west bank in a 1500 foot long strip near the lower end of the project and on the east bank in a 5000 foot long strip along the east side of the overflow bench (Figure 6.0).

The removal of existing riparian trees and brush will be minimized.

SECTION 7.0 FEDERAL, STATE, AND LOCAL AGENCY COORDINATION

The draft environmental assessment (EA) was coordinated with the following agencies having legislative and administrative responsibilities for environmental protection. A copy of the correspondence from those agencies that provided comments and planning assistance for preparation of the draft EA are in the appendices. The mailing list for the 30-day public review period for this EA is in Appendix A.

U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Natural Resources Conservation Service
Kansas Department of Health and Environment
Kansas Water Board
Kansas Department of Wildlife and Parks
Kansas State Historical Society
Wichita and Affiliated Tribes

SECTION 8.0 REFERENCES

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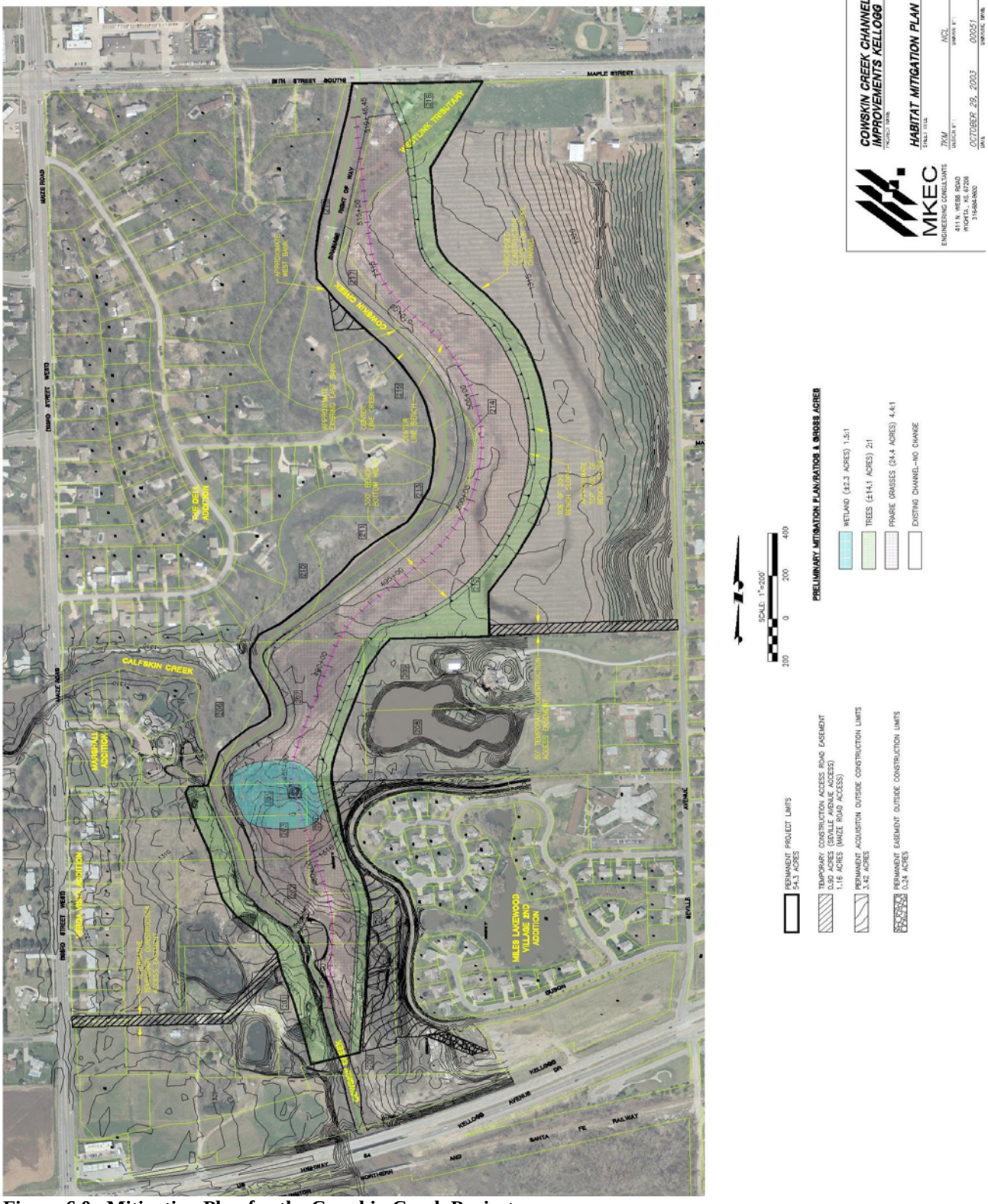

Figure 6.0. Mitigation Plan for the Cowskin Creek Project.